DRAFT

Use Attainability Analysis (UAA) Outline

11/17/99

Goal of UAA – To provide scientific analysis supporting recommendations concerning appropriate use classifications and standards for stream segments in the Upper Animas Watershed.

I. Introduction *(Butler)*
- A. Explanation of water quality concerns
- B. Descriptions of current segments, use classifications and standards
- C. Need for UAA
- D. Triennial Reviews
- E. Brief history of WQCC hearings

Rocky Mt biological index – Remgo - South

II. Obligations under Clean Water Act *(Butler)*
- A. Permits – protect existing and potential uses
  1. For Point Sources
  2. Stormwater Permits
- B. Enforcement on Abandoned Sites
- C. Landowner Perceptions about permits and liability
- D. The Shadow of CERCLA - Liability Exposure
  1. Property Owners
  2. 3rd Parties

why UAA

* talk w/ Nat Mundo

III. Addressing Water Quality *(Butler)*
- A. Description of Stakeholder process
  1. Who are the Stakeholders – non-exclusionary
  2. Collaborative working relationships between different gov't agencies and non-gov't entities
- B. Summary of extent of watershed characterization
- C. Summary of remediation efforts to date
  1. Consent decree – Sunnyside's work
  2. Remediation under Forest Service/BLM – AML Program
  3. MRCC
  4. Gold King
  5. Silver Wing
  6. Carbon Lakes
  7. Mammoth
  8. Etc.

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IV. Area Overview *(Butler)*
- A. Physical description of the area
  1. Location
  2. Climate
  3. Geology
  4. Hydrology
  5. Ecology
- B. Mining History
- C. Land ownership
- D. Past and current economy and community – including other land uses
- E. Cultural preservation
- F. Anecdotal information regarding fish populations

V. Identification of Existing Uses (these must be protected) *(Owens)*
- A. Aquatic life
- B. Water supply - wells
- C. Agriculture
- D. Recreation
- E. None

VI. Scientific Approach *(Butler/Simon)*
- A. Need for scientific approach in characterizing the watershed.
- B. Overall description of how the scientific studies compliment one another
- C. Rational and road map for understanding the information provided in the following sections.

VII. Pre-mining Geochemical Baseline – conditions in the watershed prior to mining *(USGS)*
- A. Geochemical data from pre-mining terrace sediments
- B. Geochemical data from oxbow lakes near Durango
- C. Geochemical data from ferricretes and old iron bogs

VIII. Assessment of Sources of Water Quality Degradation *(Owens)*
- A. In-stream water quality
  1. Seasonal analysis by segments
  2. Determine contaminants above table value standards (85th percentile)
- B. Ground water effects
  1. ~~Natural~~ processes that cause water quality degradation
  2. Effects of natural springs and iron bogs
- C. Metals in sediments and colloids
- D. Metals derived from mines
  1. Acidic mine drainage
  2. Mine waste ~~dumps~~
     - a. Leachable metals
     - b. Acid generating potential
- E. ~~Load Analysis~~ by Segments
  1. Natural - GW
  2. Mining related (no distinction made between reversible and irreversible, see section XII)
  3. Other sources – roads, grazing, Silverton W.W. plant
  4. Site specific examples of natural vs. human-induced loadings

IX. Biological & Physical Analysis *(Biology workgroup)*
- A. Description of current health of aquatic species in each segment
  1. Trout & other fish
  2. Macroinvertebrates
  3. Algae and Fungi
- B. Description and condition of physical habitat for species
- C. Description of ~~desirable~~ especially sensitive, species in each segment

X. Limiting Factors Analysis *(Biology workgroup, other stakeholders)*
- A. Limiting Factors
  1. Chemical
  2. Physical
  3. Biological
- B. Conditions necessary for sustaining ~~desirable species~~ in each segment

XI. Remediation *(Butler)*
- A. Types of remediation
  - 1. Hydrologic controls
  - 2. Draining adit treatment
  - 3. Removal of mine wastes
- B. Examples of remediation and associated costs
- C. Magnitude of costs associated with different types of remediation
- D. Effect of upstream remediation on targeted segments
  - 1. Geochemical modelling

Mill tailings
Habitat modification (erosion - roads)

XII. Remediation Scenarios and Costs *(Butler)*
- A. Reversible vs. irreversible loadings
- B. Reliability, cost-effectiveness, and feasibility of remediation activities to targeted segments
- C. Prioritization of sites in different drainages
- D. Selection of sites + remedial actions
- E. Anticipated load reduction/concentration in stream

XIII. Recommendations for Segmentation, Use Classifications and Standards *(All)*

description of attainable uses --
temporary modifications

Appendices

A. Hydrological data – collection methods, locator maps for sampling and data
B. Assumptions and techniques used for modeling loads
C. Biomonitoring
D. Bioassessment
E. Toxicity
F. Biological habitat analysis
G. Limiting Factors Analysis
H. Remediation prioritization under watershed approach – Method and results
I. Description, costs and results of completed remediation projects